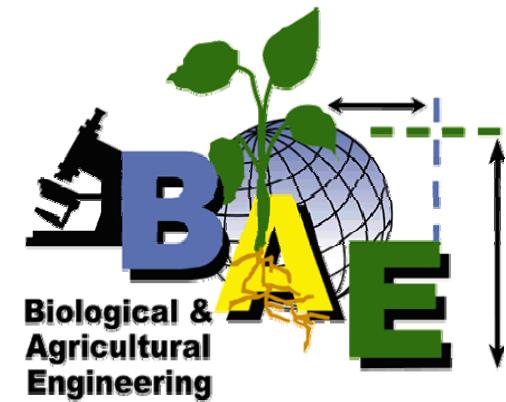


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DRAINMOD

Simulation Model for Poorly Drained Lands

A New Hybrid Model

- **WHY** a new model?
- **WHAT** is the model to do?
- **WHO** will be the users of the model?

WHY A NEW MODEL?

- Existing models not sufficient?
- To take full advantage of new technology?
- Is combination of existing models an option?

WHAT ARE THE MODEL OBJECTIVES?

- Field scale to sub-watershed scale
- Within field predictions, grids, field size units?
- What kinds of questions will the model be designed to address?

WHO WILL USE THE MODEL?

- Scientists?
- Engineers?
- Technicians?
- Regulators?
- Planners?





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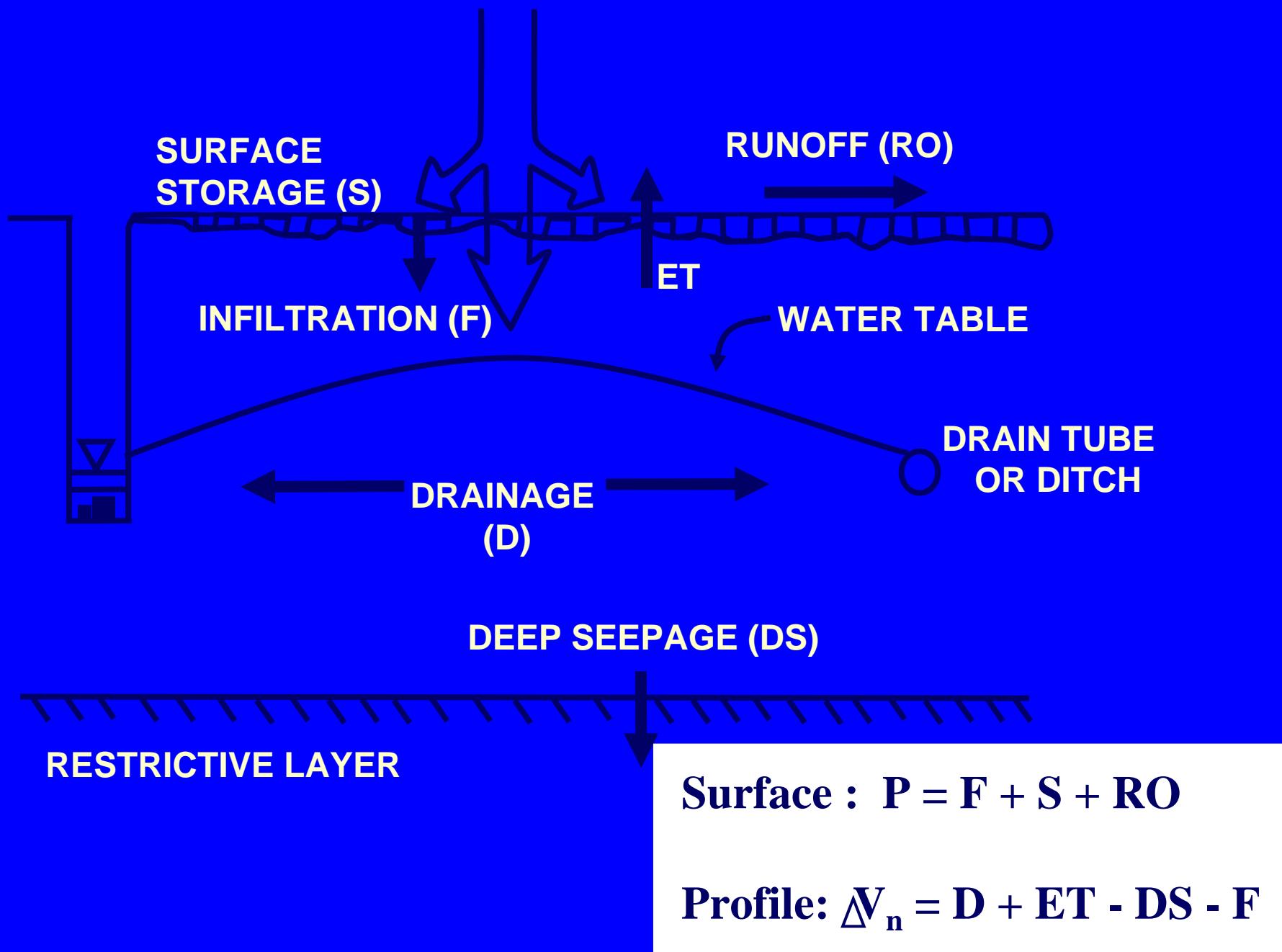


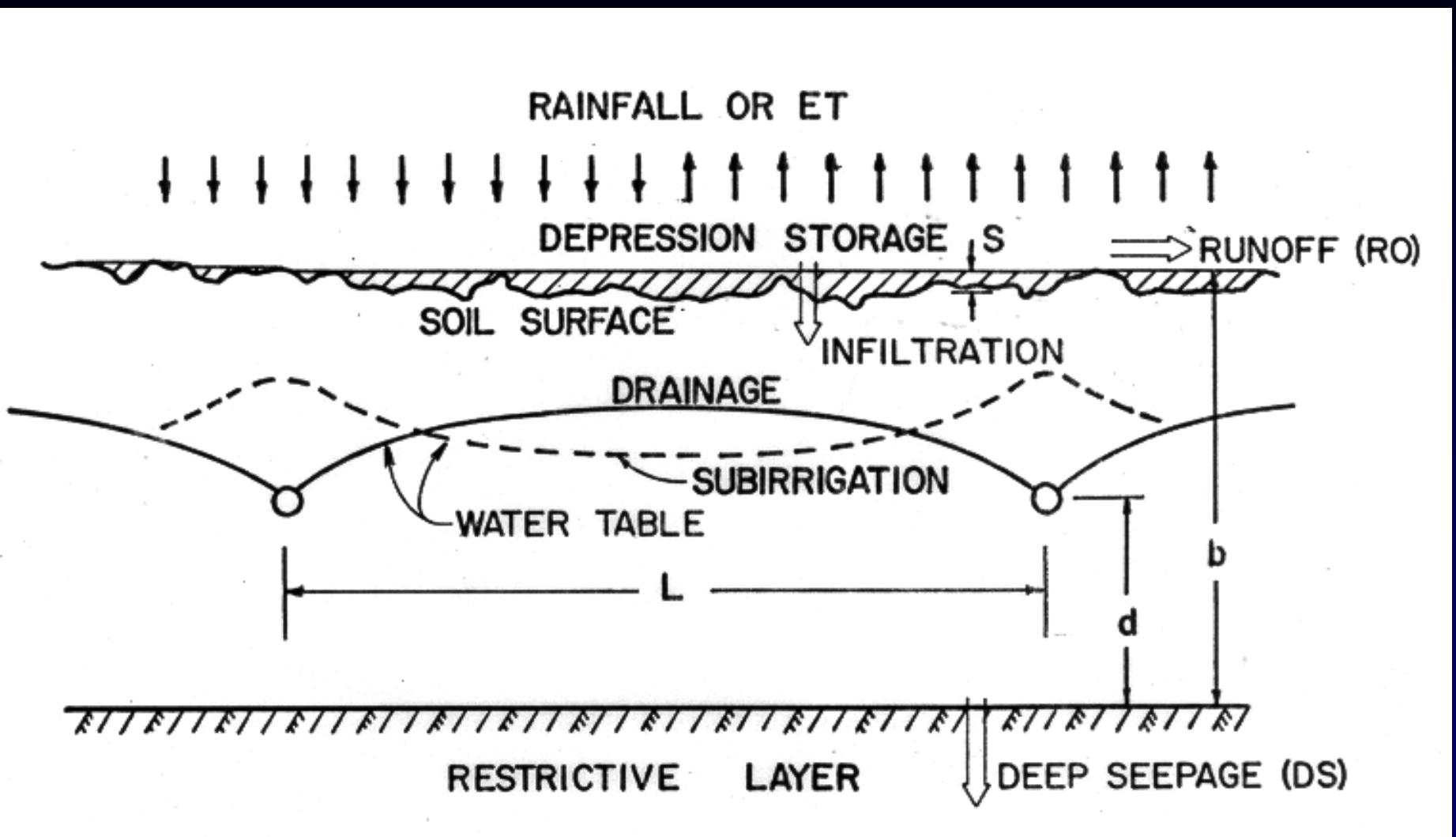


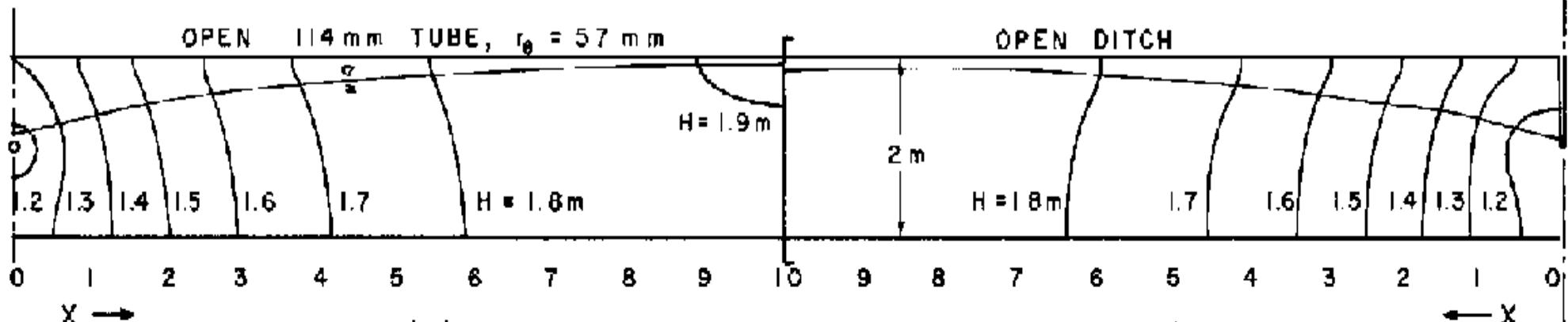




RAINFALL or IRRIGATION (P)







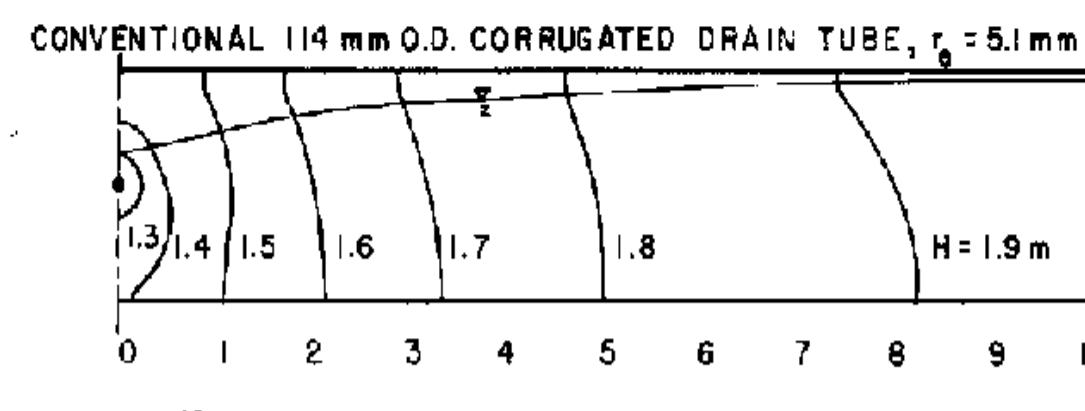
$t = 20 \text{ h}$
 $L = 20 \text{ m}$
 $b = 2 \text{ m}$
 $d = 1 \text{ m}$

OPEN DITCH

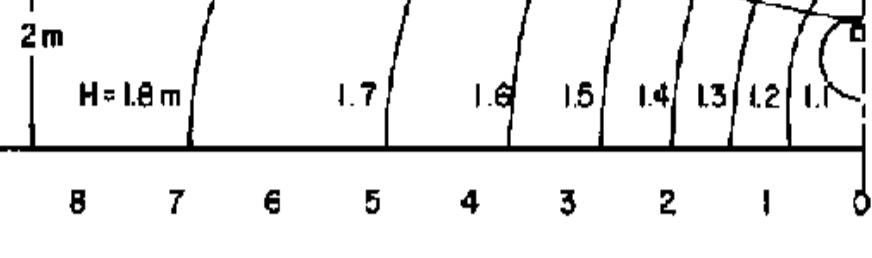
$H = 1.8 \text{ m}$

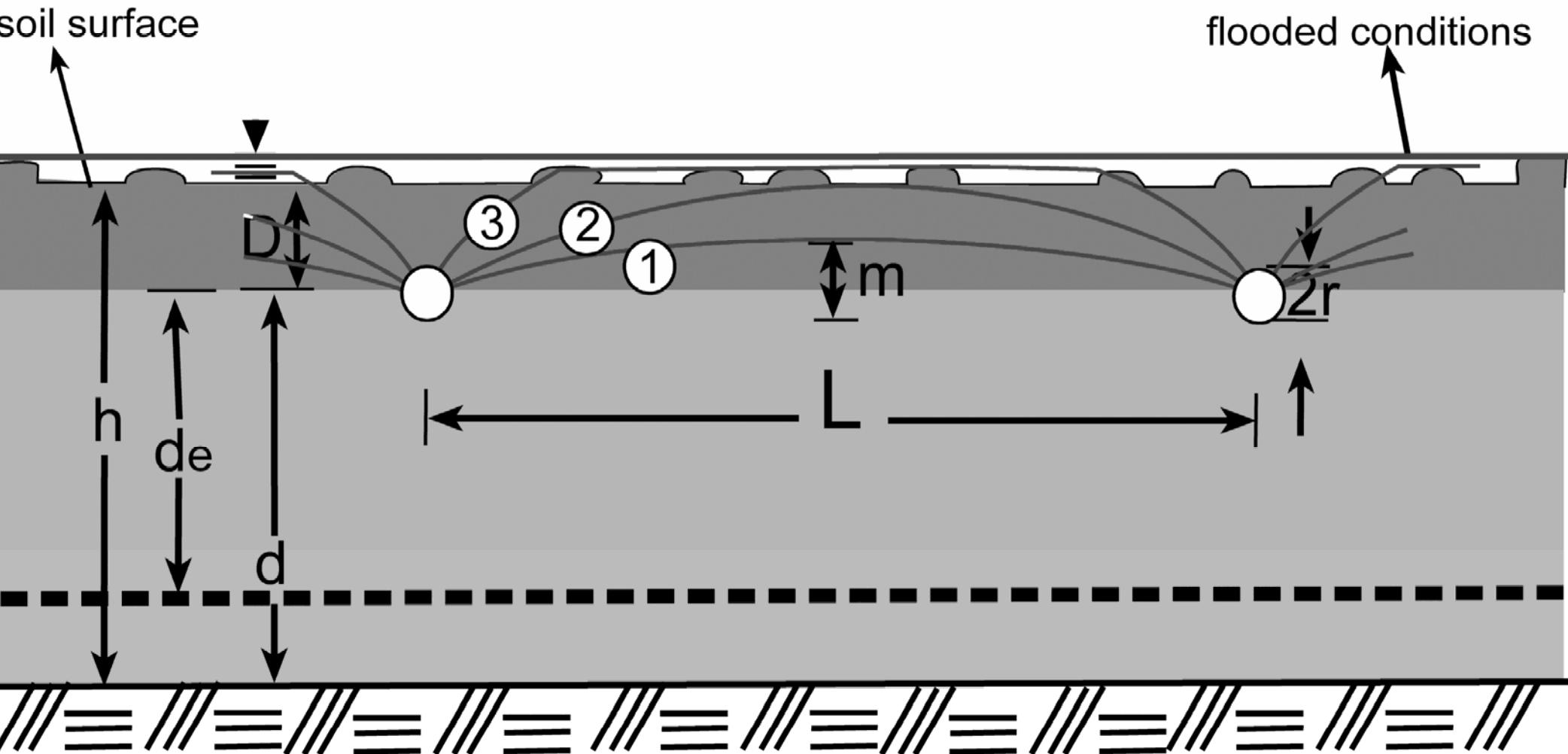
$X \leftarrow$

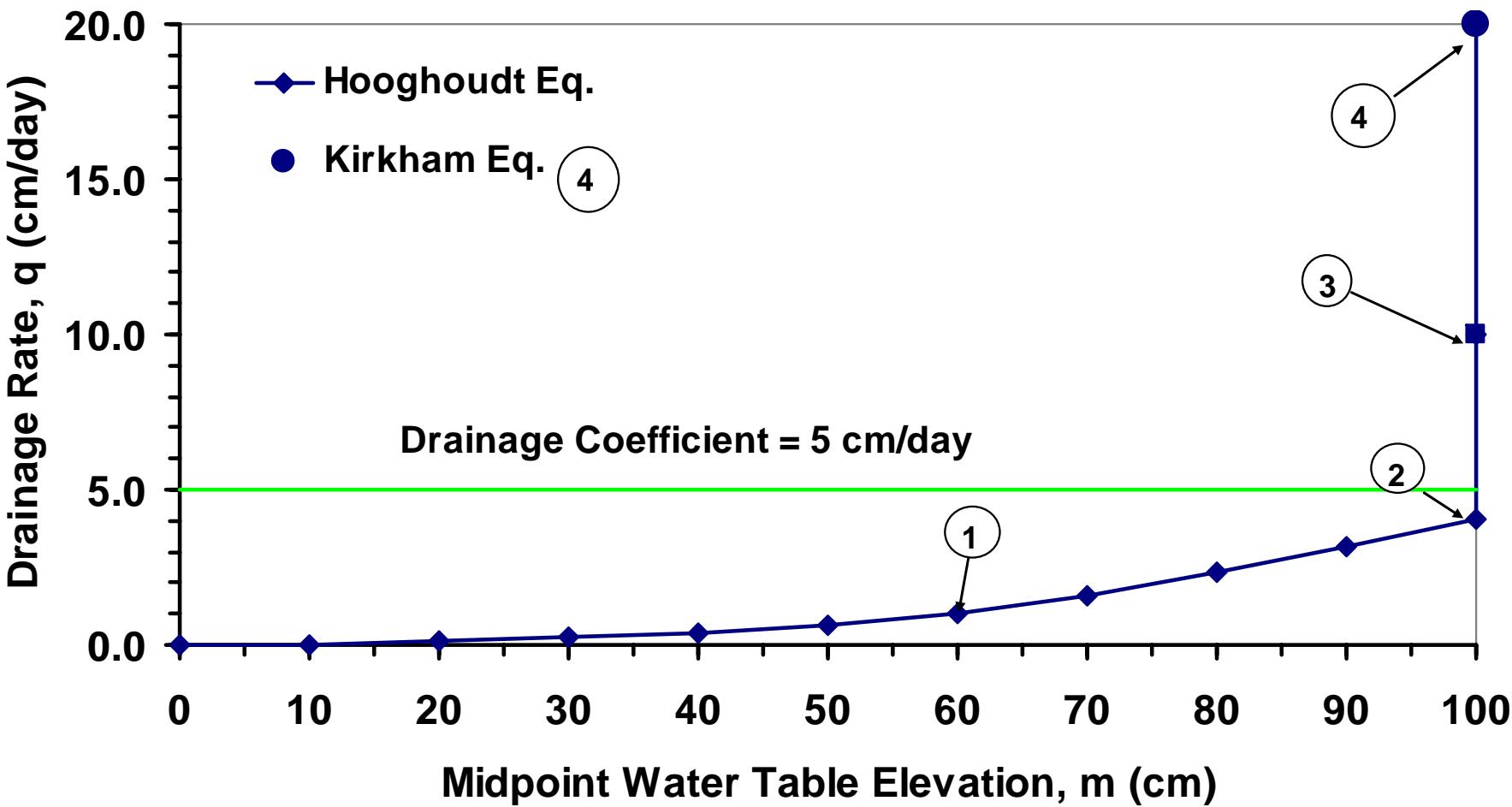
(d)

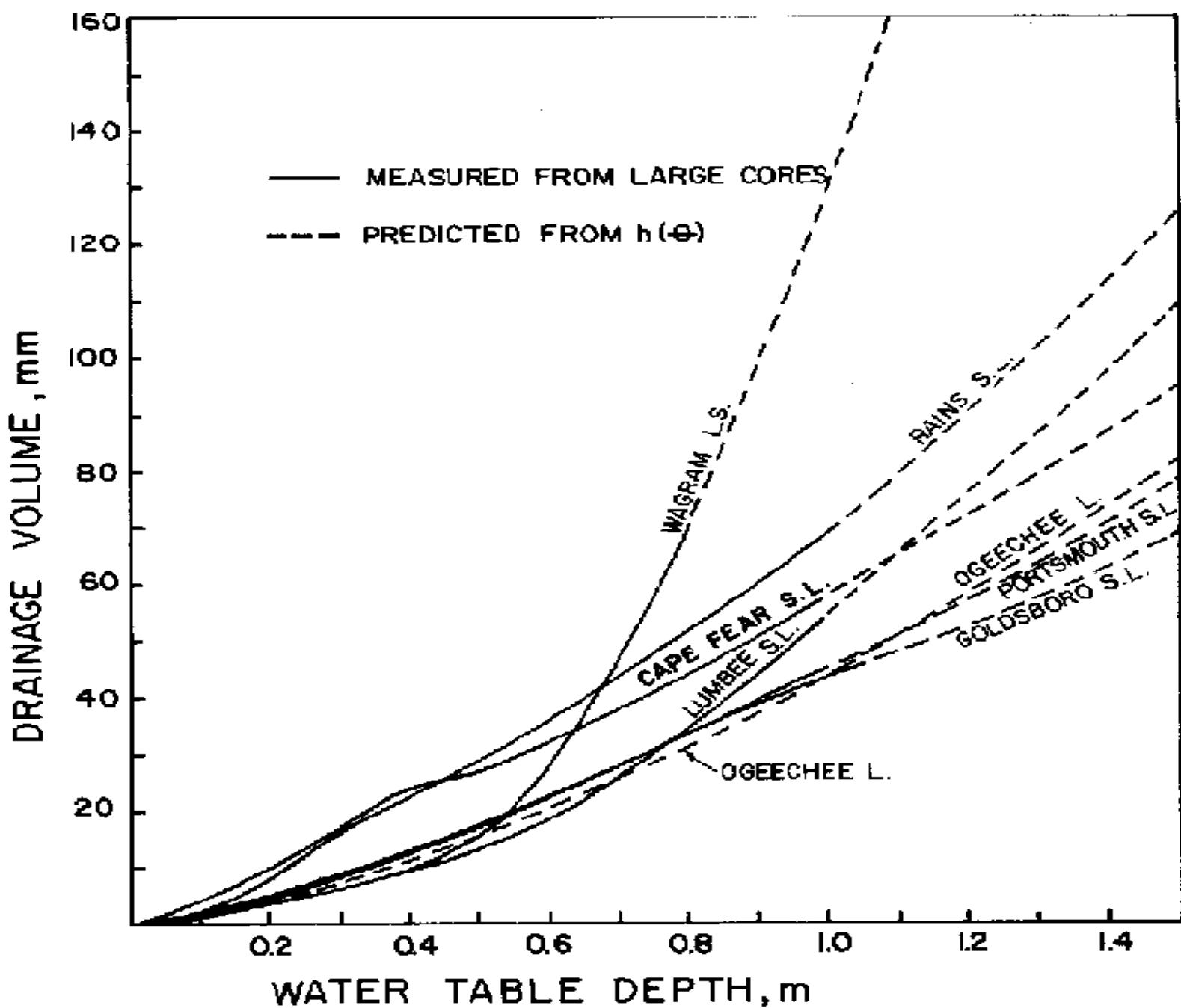


TUBE IN SQUARE ENVELOPE - $0.5 \text{ m} \times 0.5 \text{ m}$

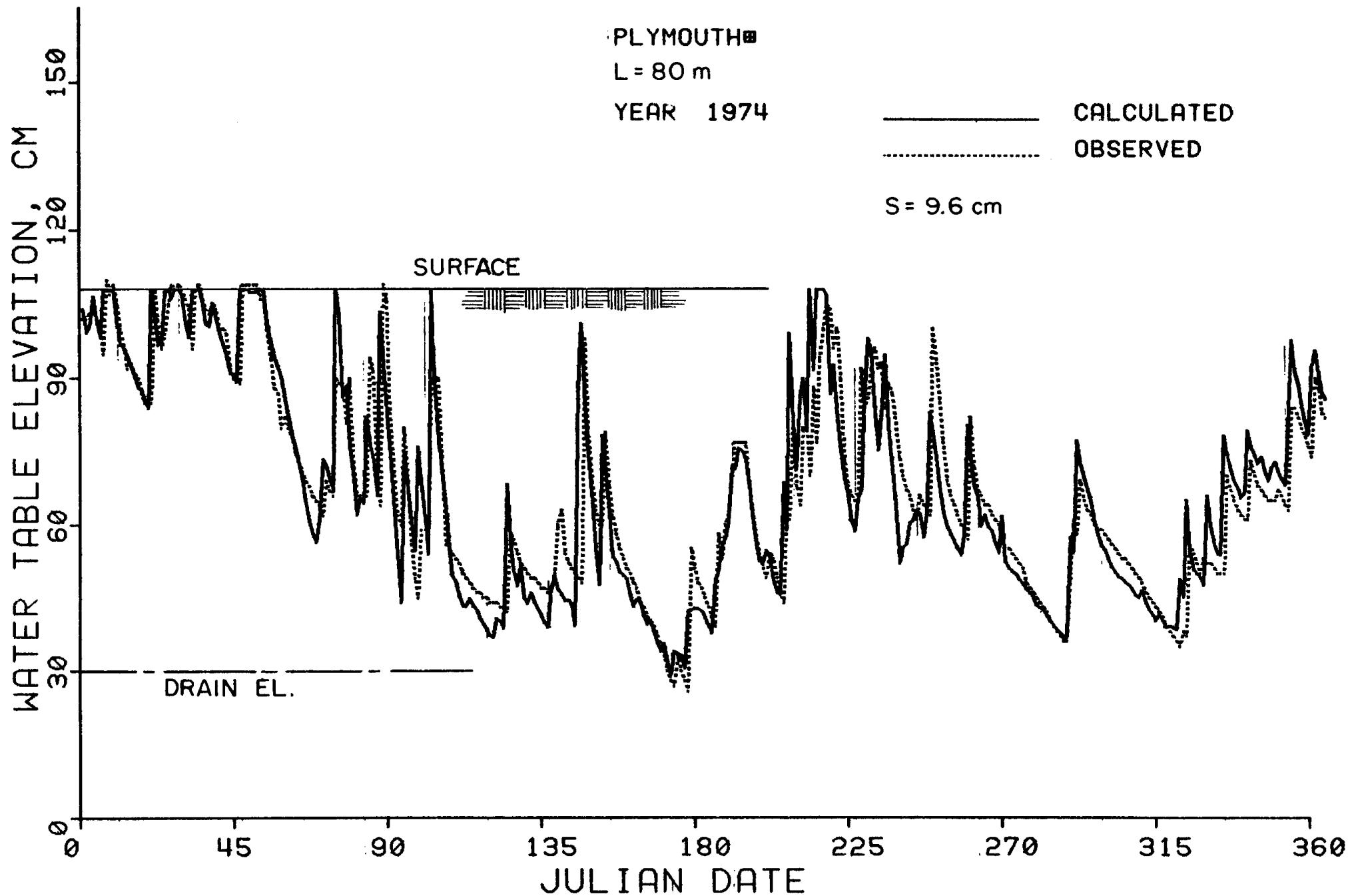


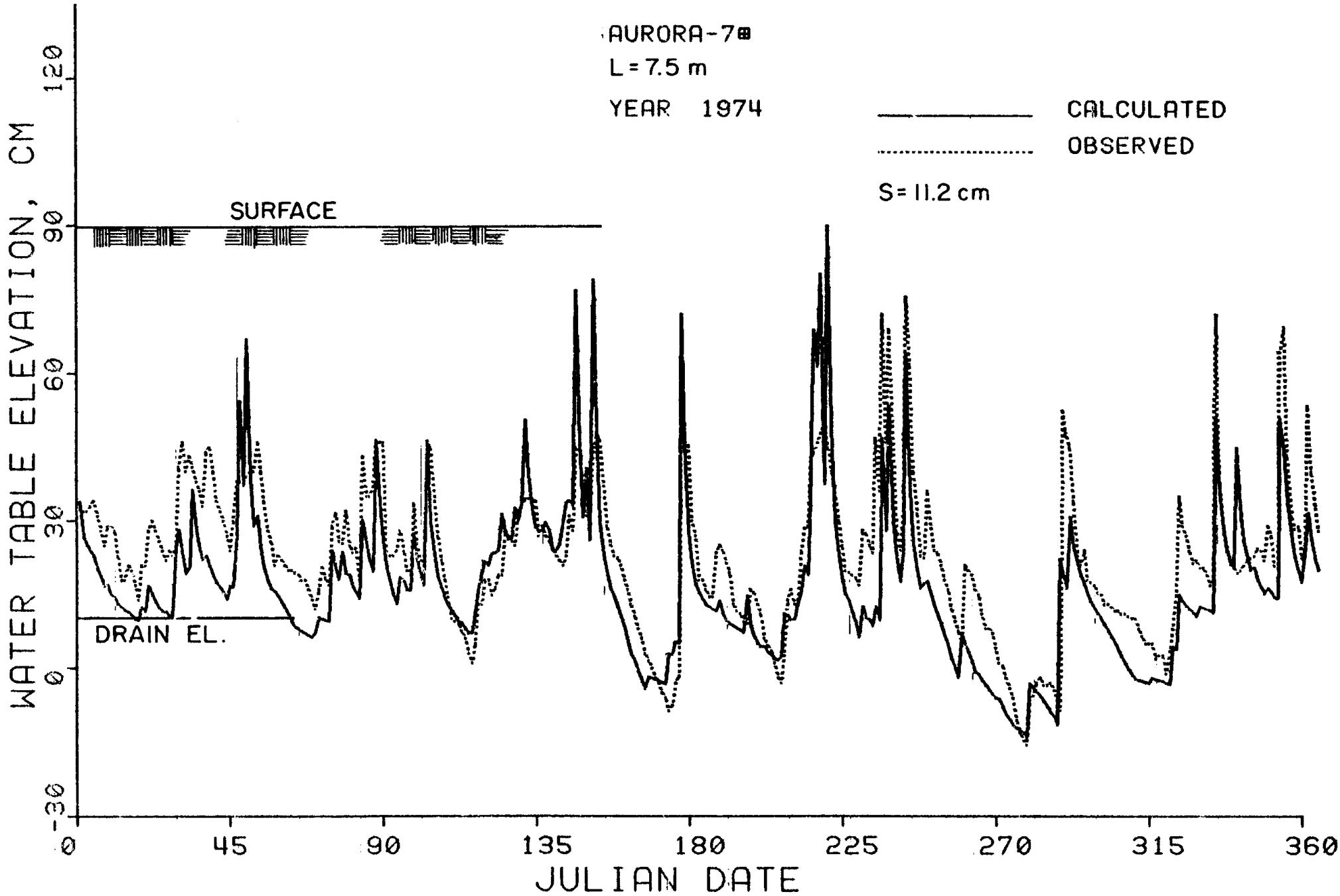






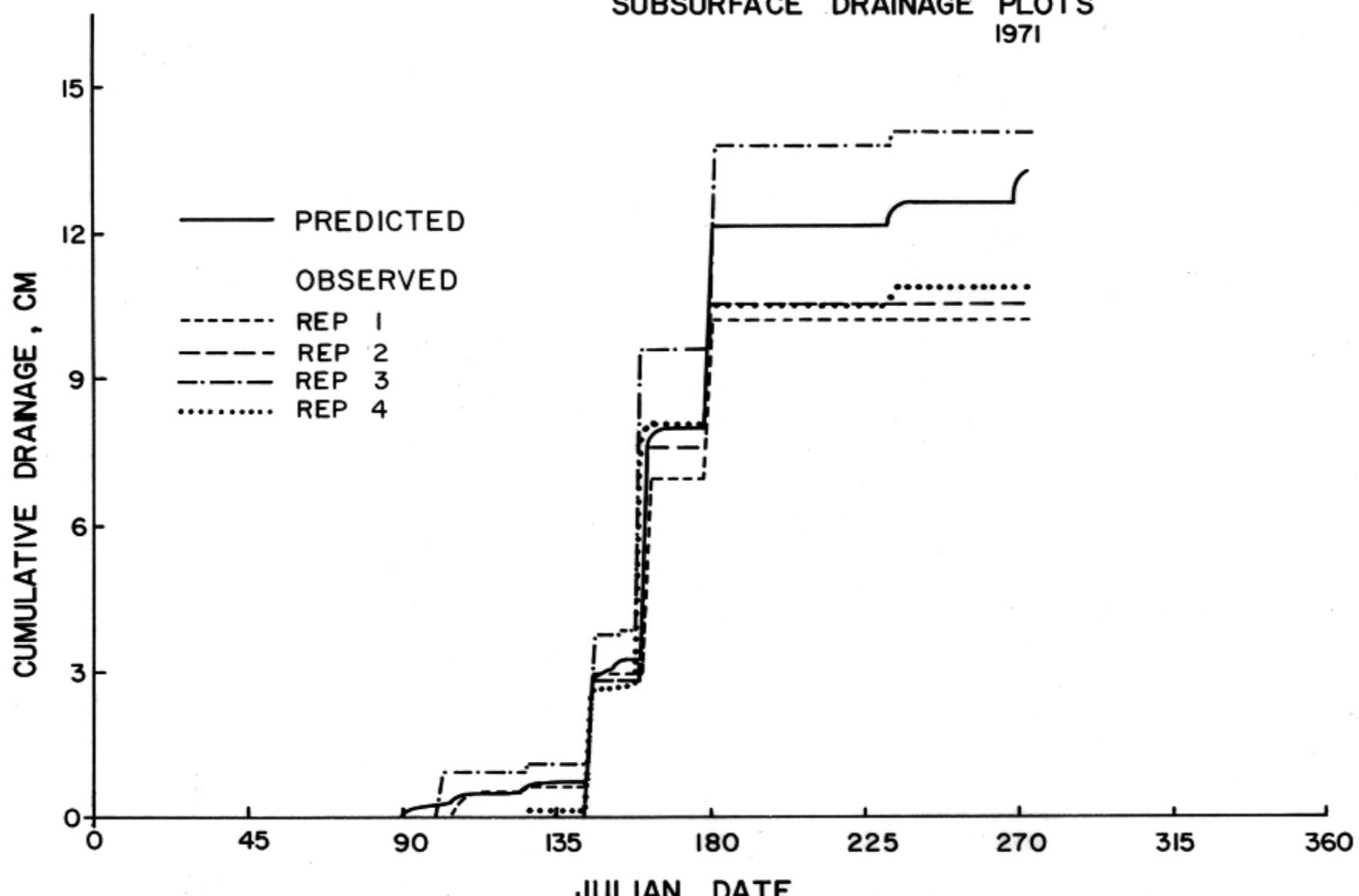






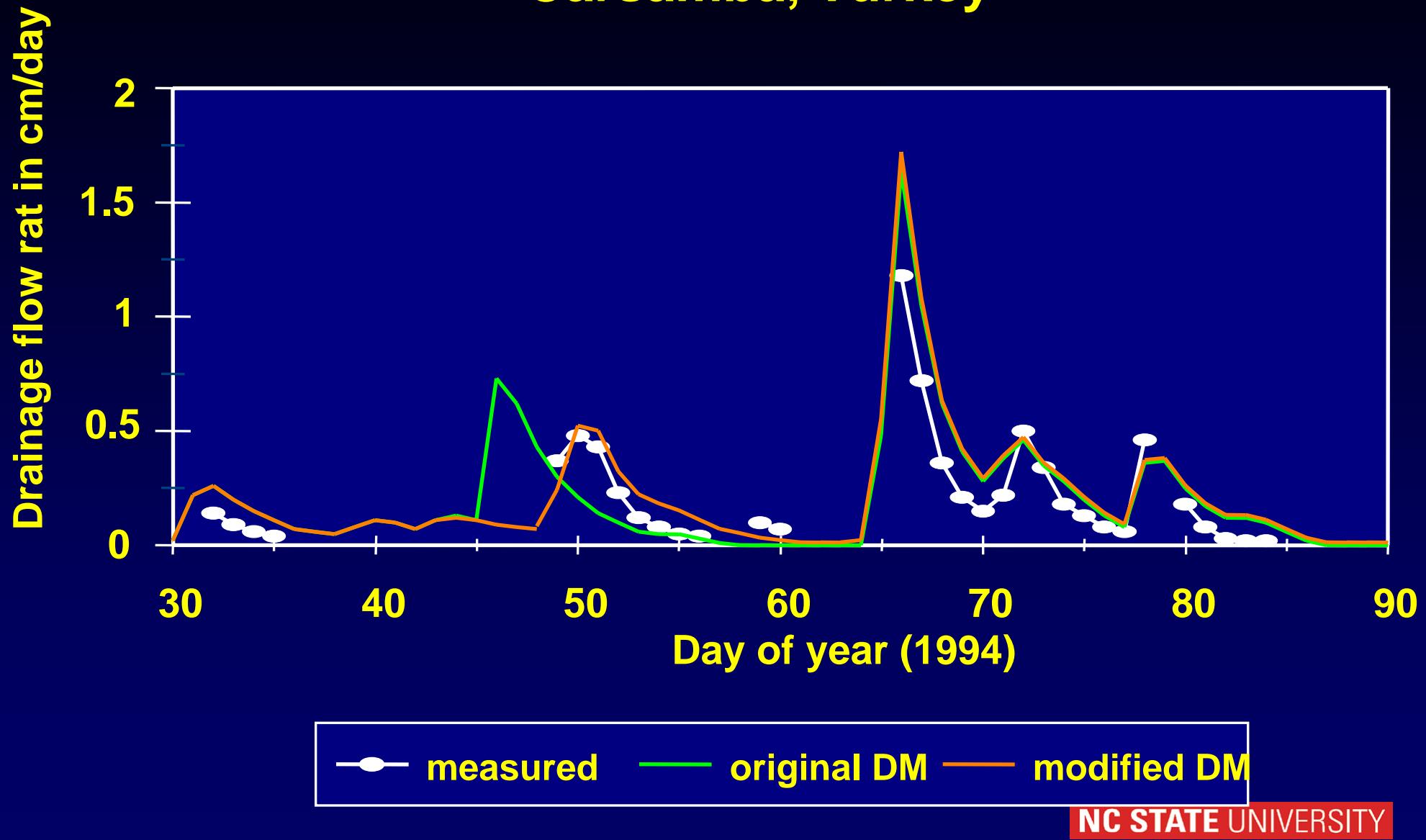


SUBSURFACE DRAINAGE PLOTS
1971





Carsamba, Turkey

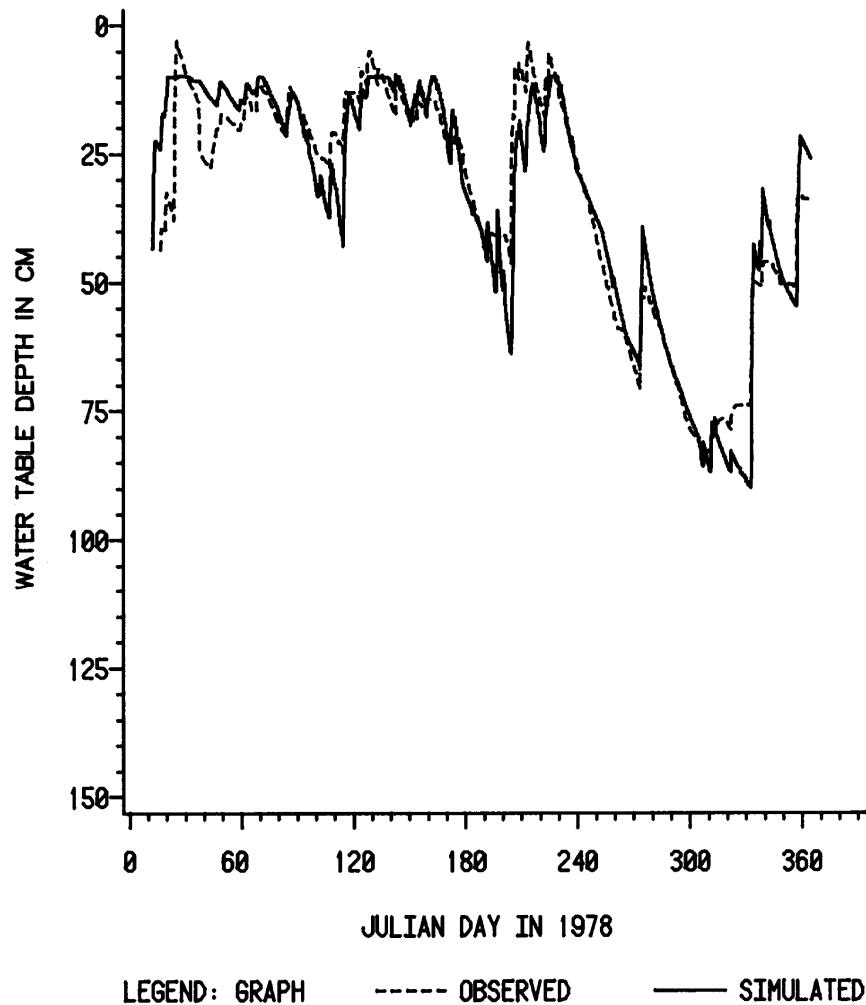


● measured — original DM — modified DM

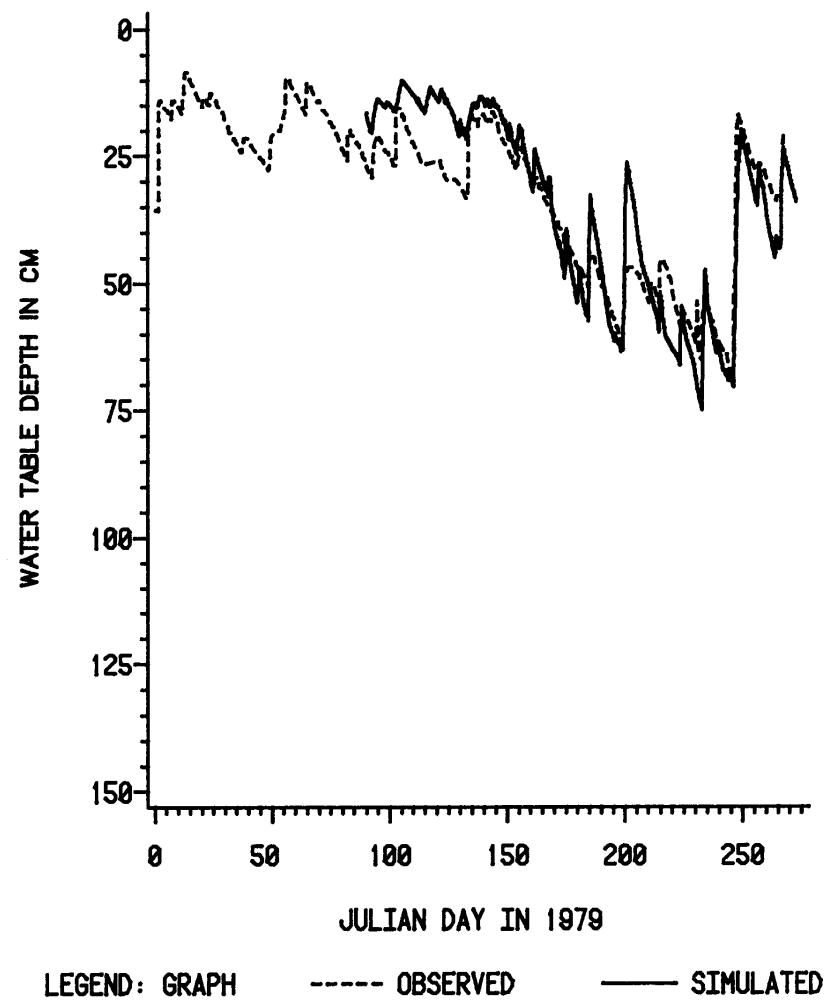
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WATER TABLE DEPTH COMPARISON FROM SITE 104



WATER TABLE DEPTH COMPARISON FROM SITE 104





FIELD TESTING OF DRAINMOND

- NORTH CAROLINA
- OHIO
- LOUISIANA
- FLORIDA
- GEORGIA
- ILLINOIS
- MICHIGAN
- INDIANA
- VIRGINIA
- CALIFORNIA
- MARYLAND
- QUEBEC

- ISRAEL
- ONTARIO
- ENGLAND
- EGYPT
- INDIA
- FINLAND
- FRANCE
- BELGIUM
- AUSTRALIA
- TURKEY

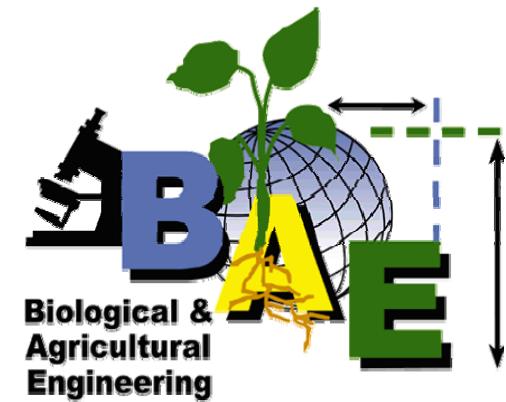
ADMS

Agricultural Drainage Management Systems Task Force



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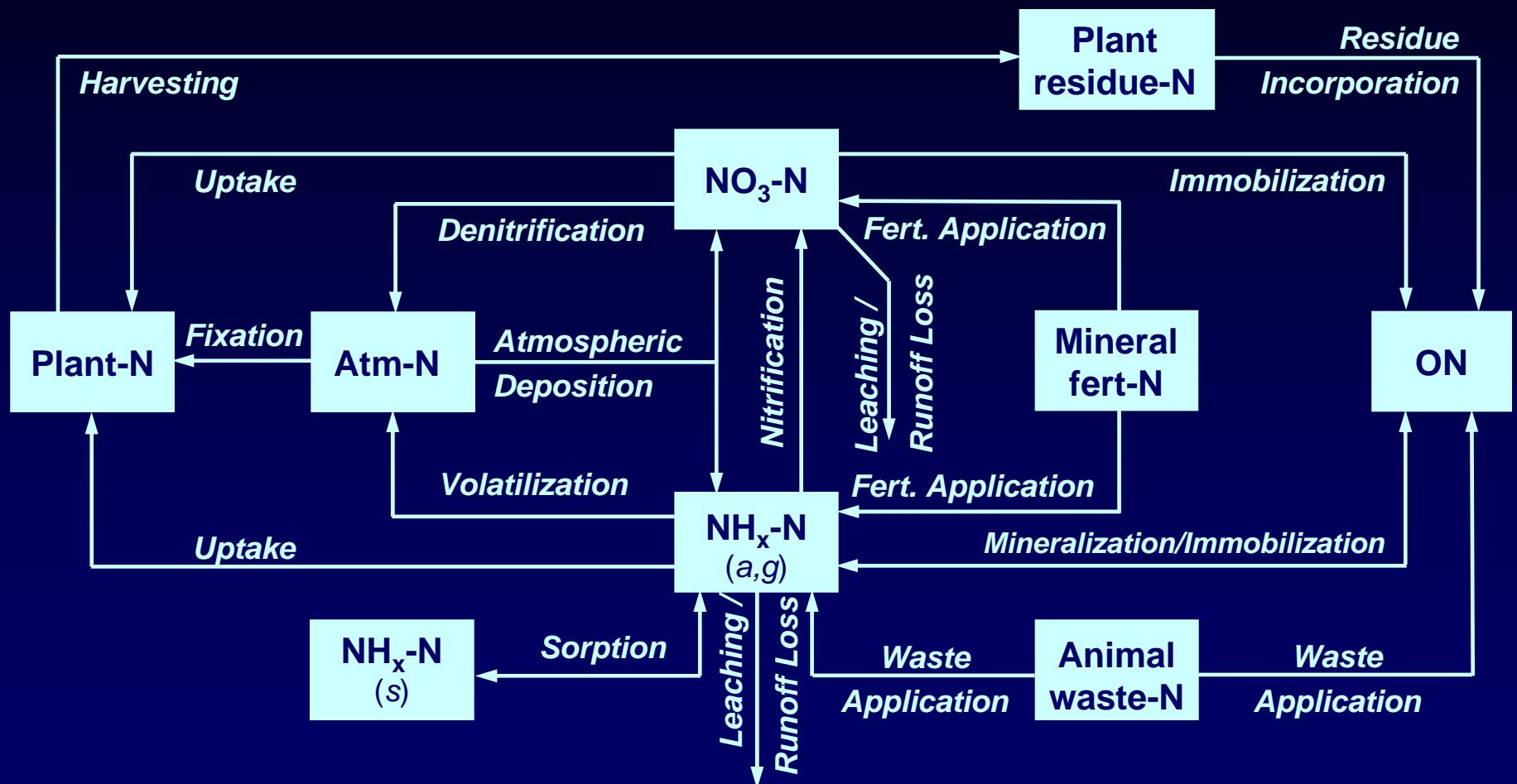
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DRAINMOD-N II: Field testing and Model Application

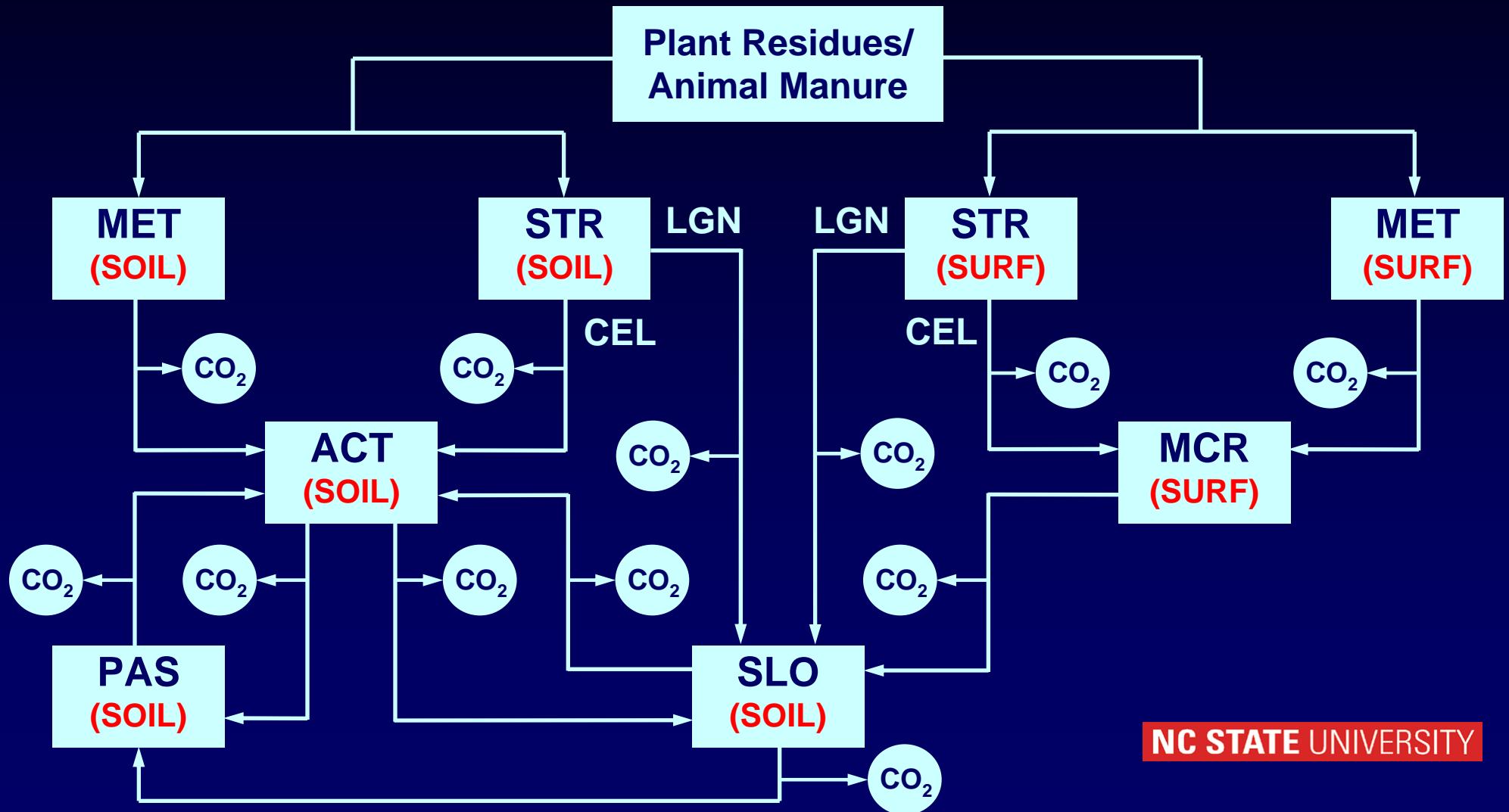
MODEL DESCRIPTION

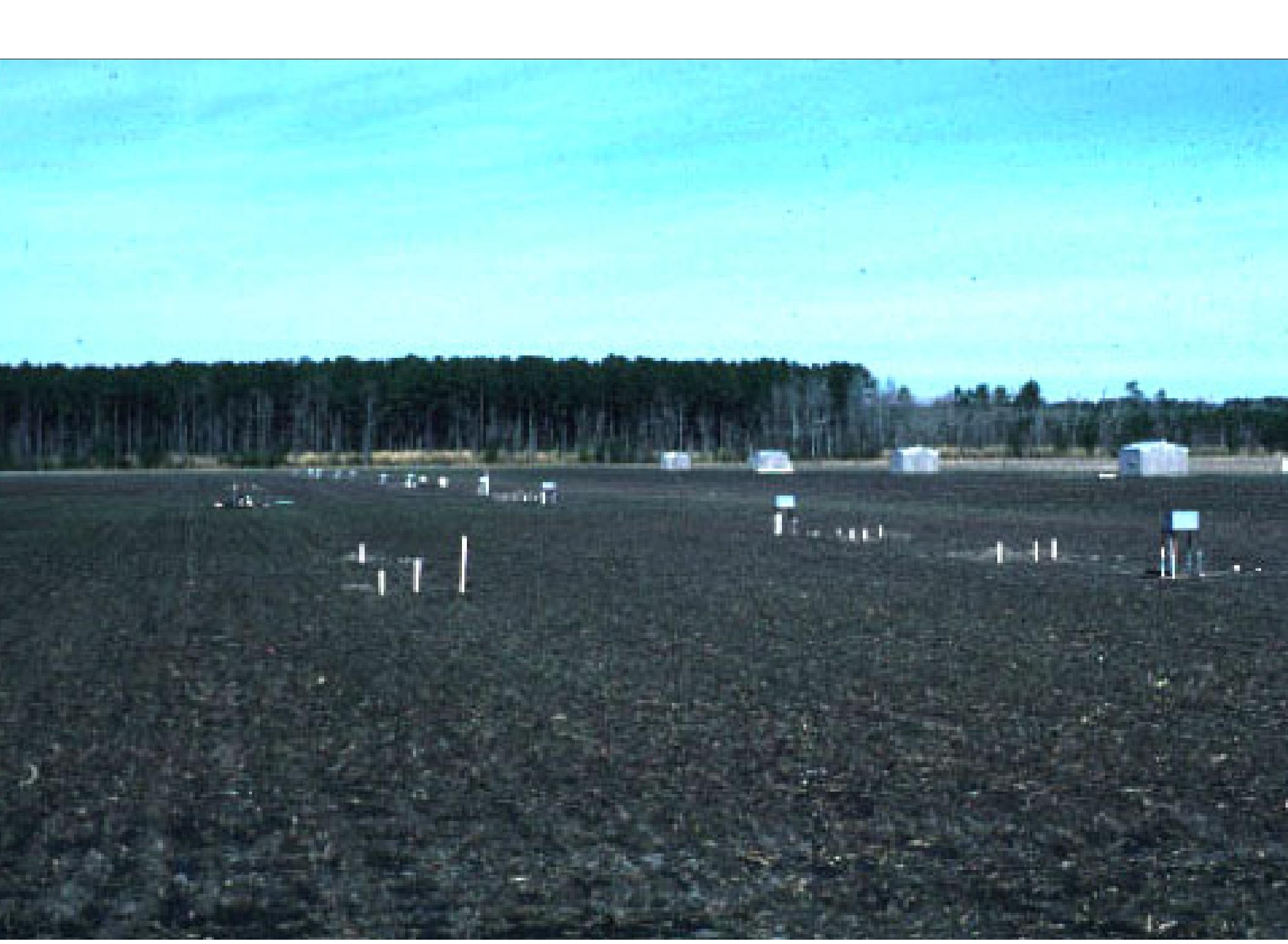
NITROGEN CYCLE



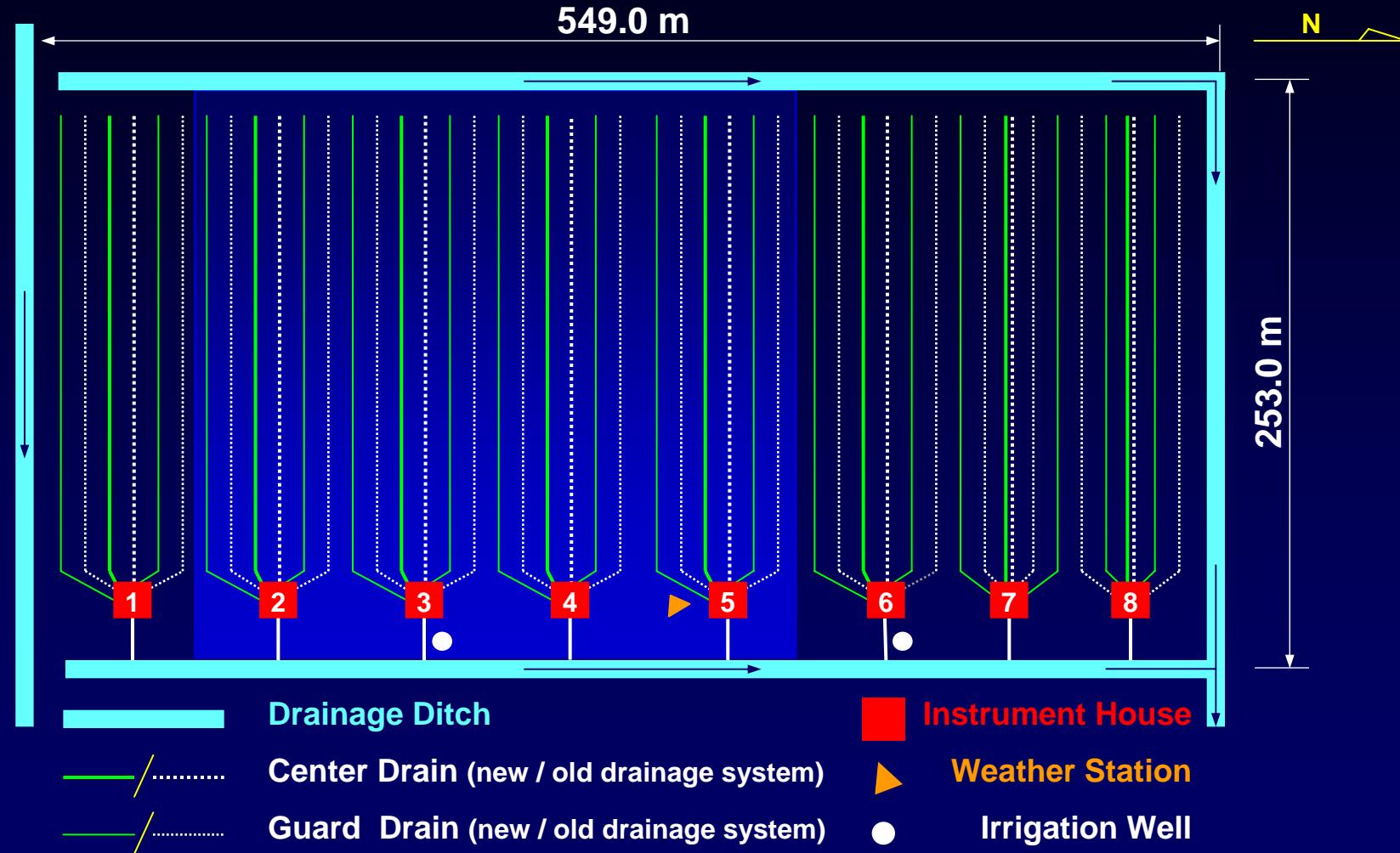
MODEL DESCRIPTION

CARBON CYCLE

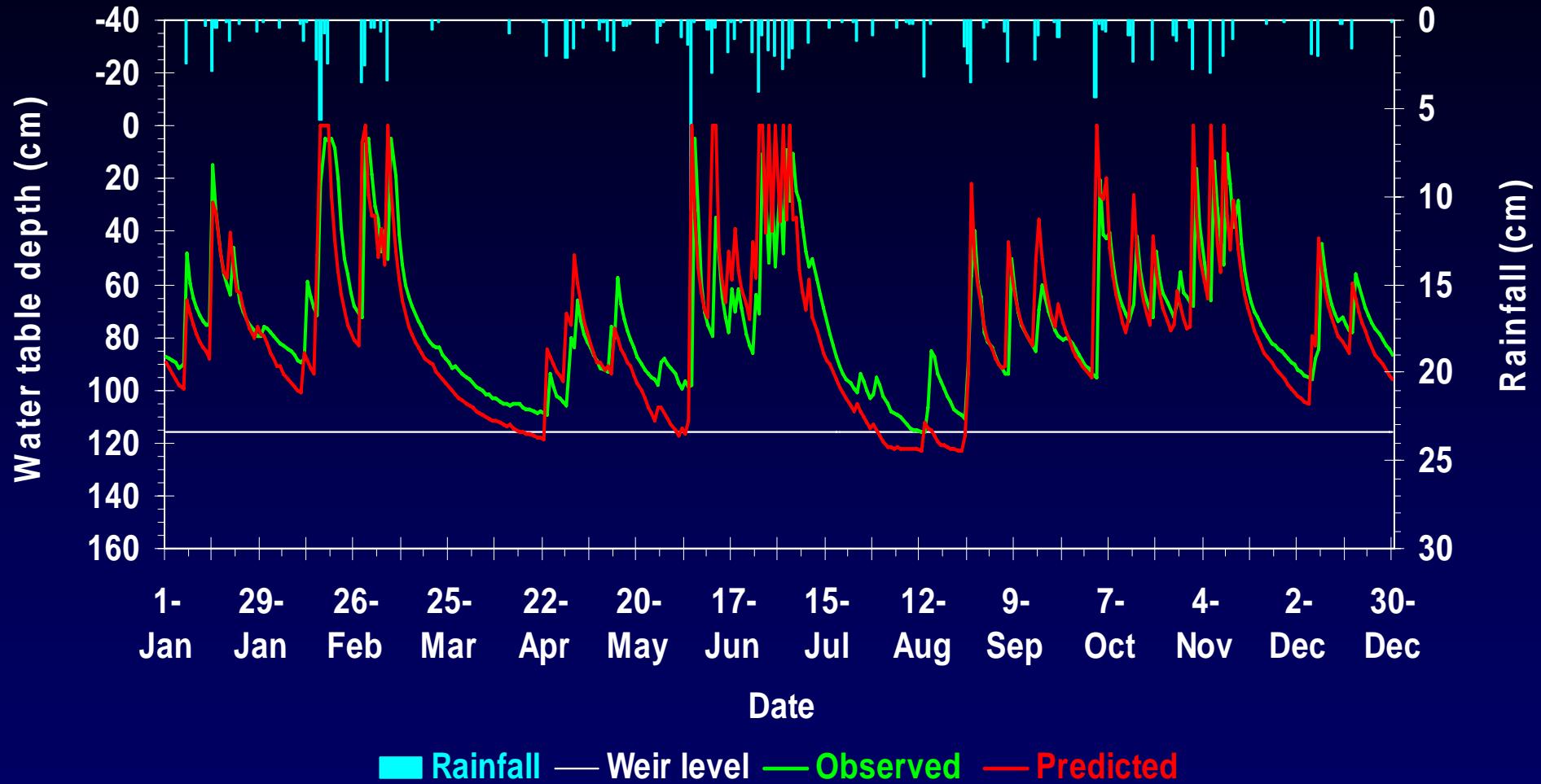




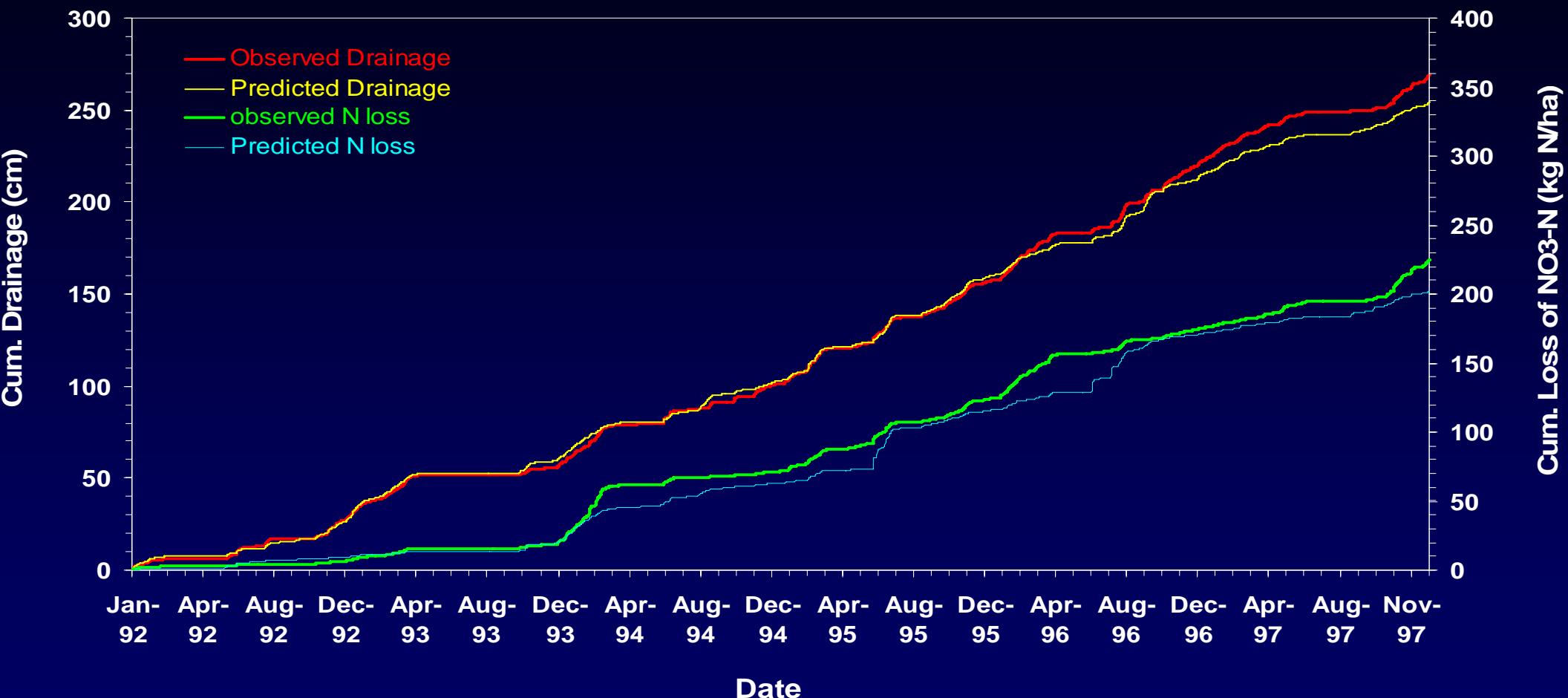
FIELD STUDY



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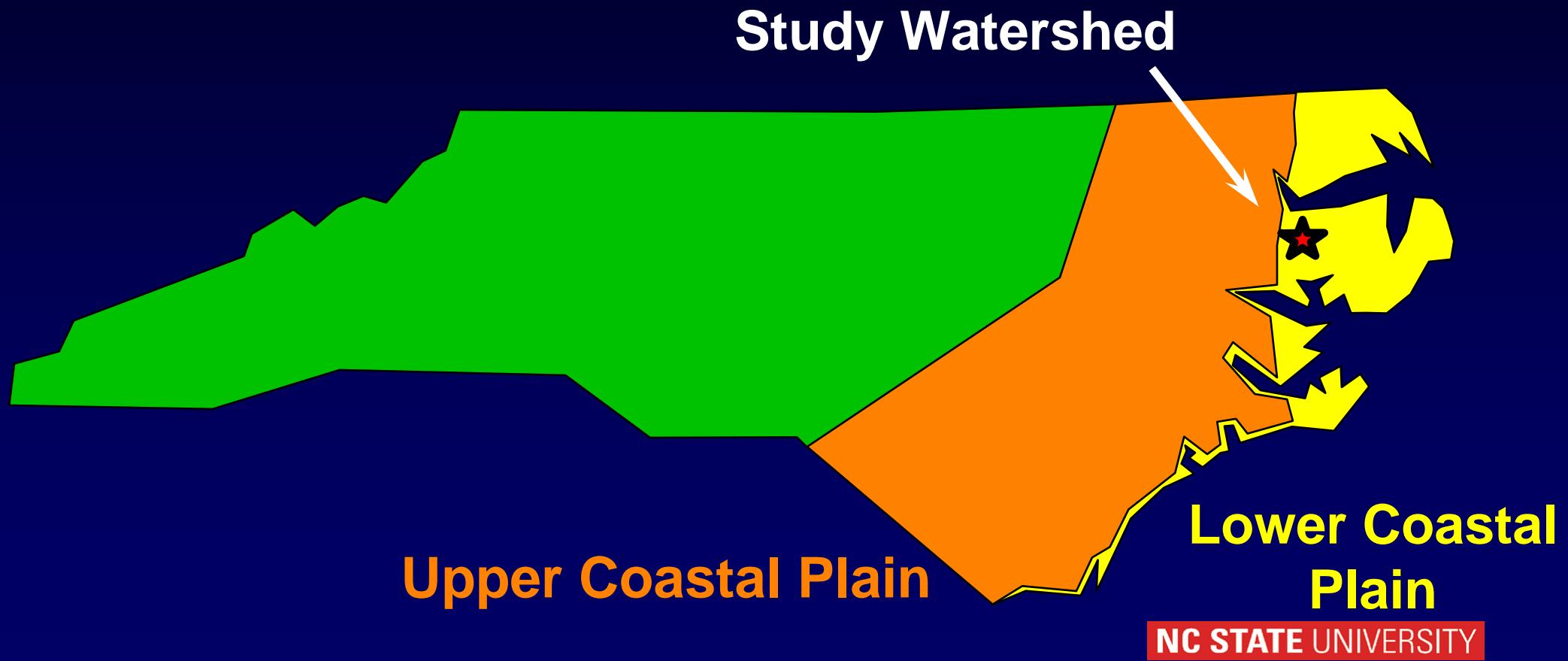
Observed and Predicted Cumulative 6-Year Subsurface Drainage and NO₃-N Loss (Plot 2, 1992-1997)



Test of DRAINMOD-NII for SEPAC site in Indiana

- Test completed, model performed very well, paper on results in preparation.

Location of Study Watershed



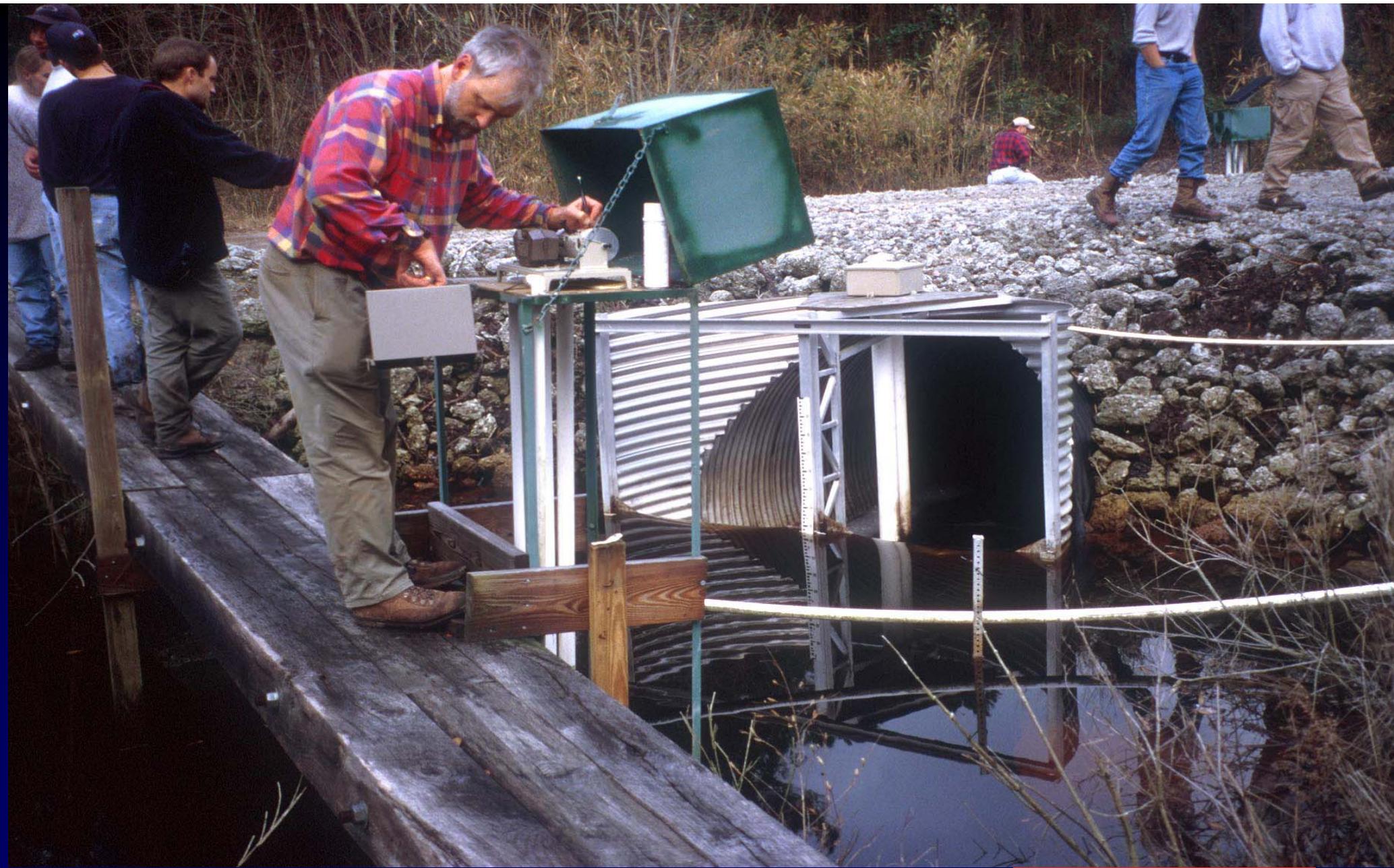
LOWER COASTAL PLAIN WATERSHED PROJECT

- Agriculture
 - Managed Forest
 - Natural Forest
-
- Automatic Stations
 - Manual Stations
 - Rainfall Stations

1 km

N

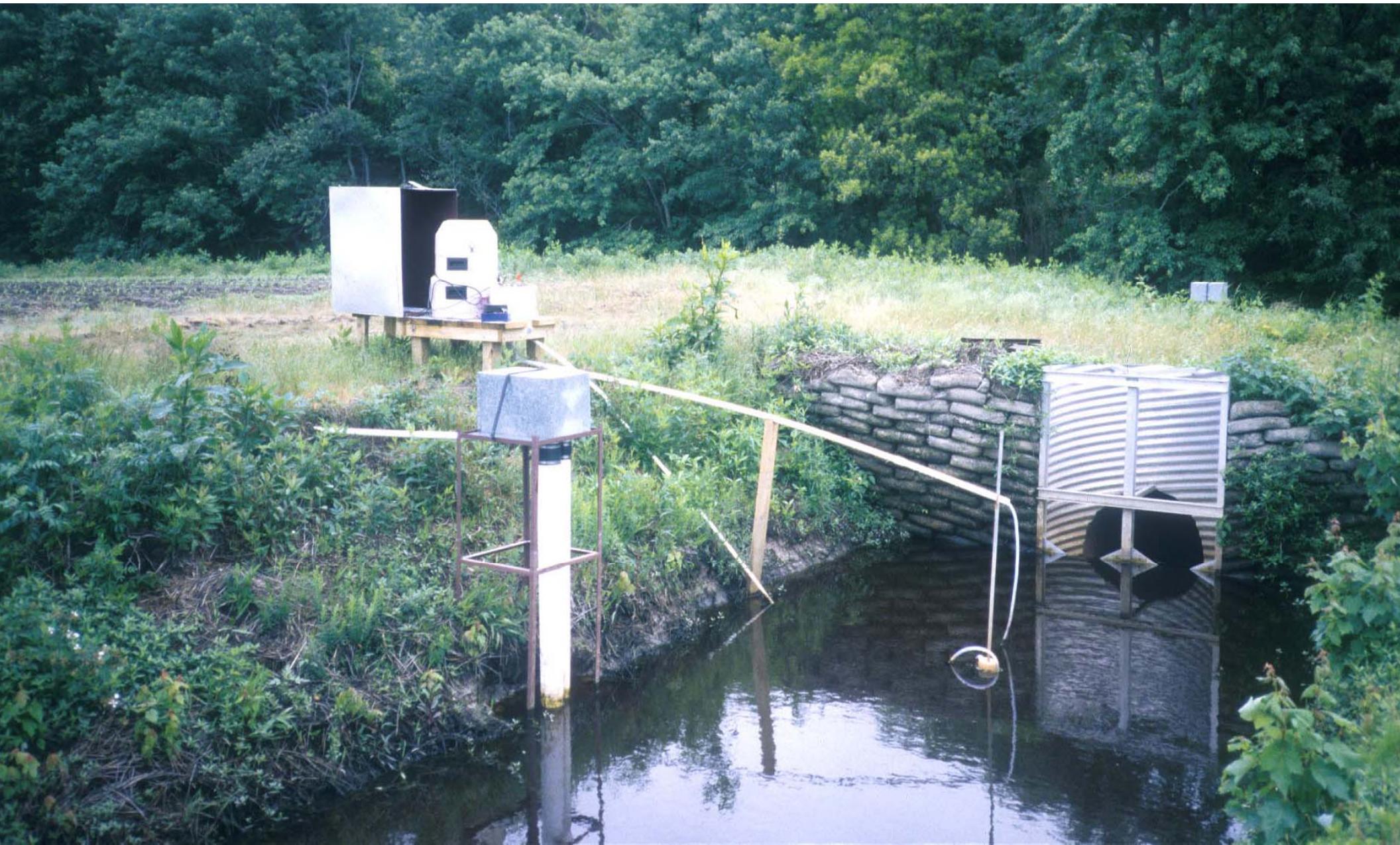




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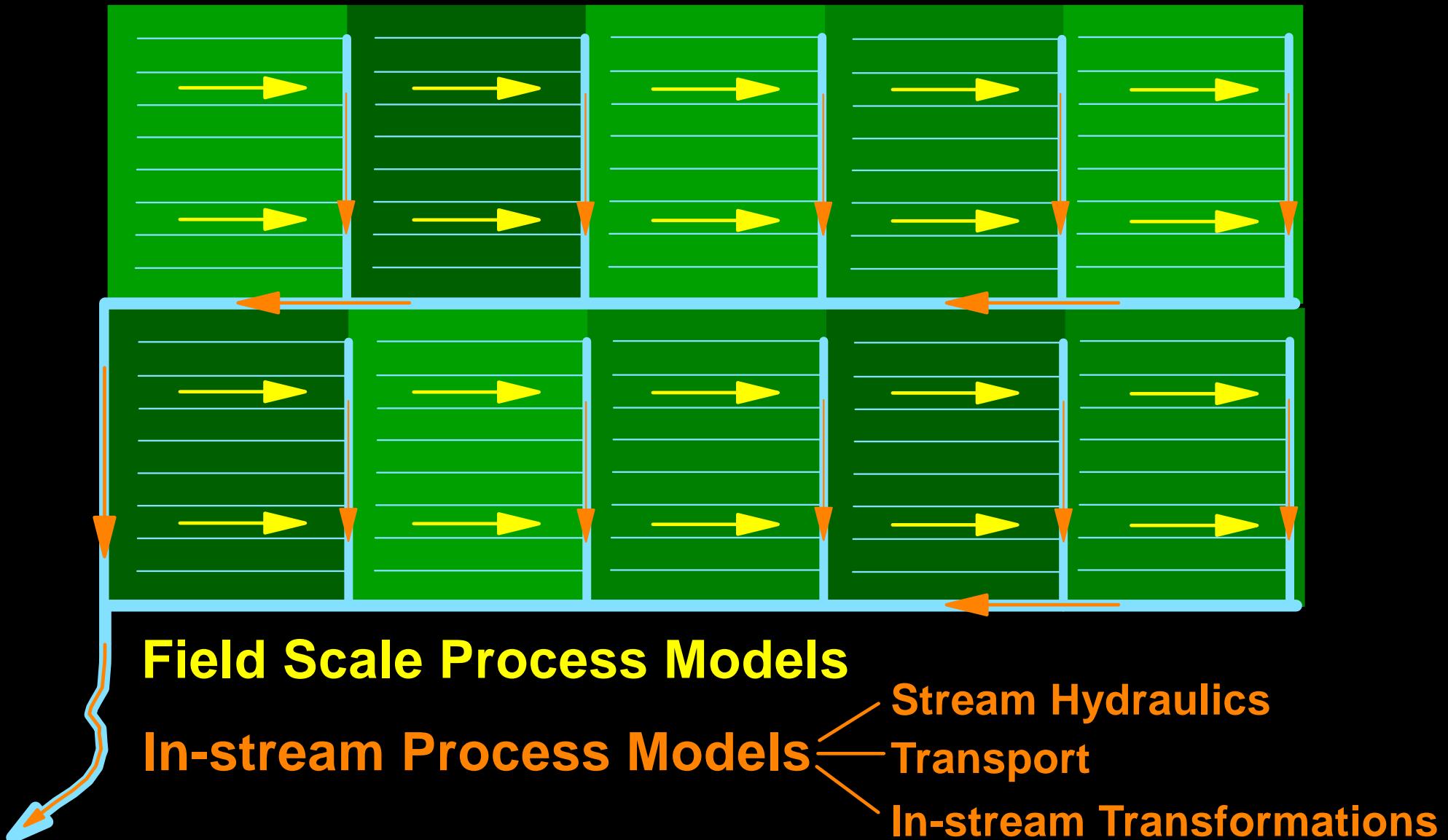


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Simplified Schematic of Watershed Model

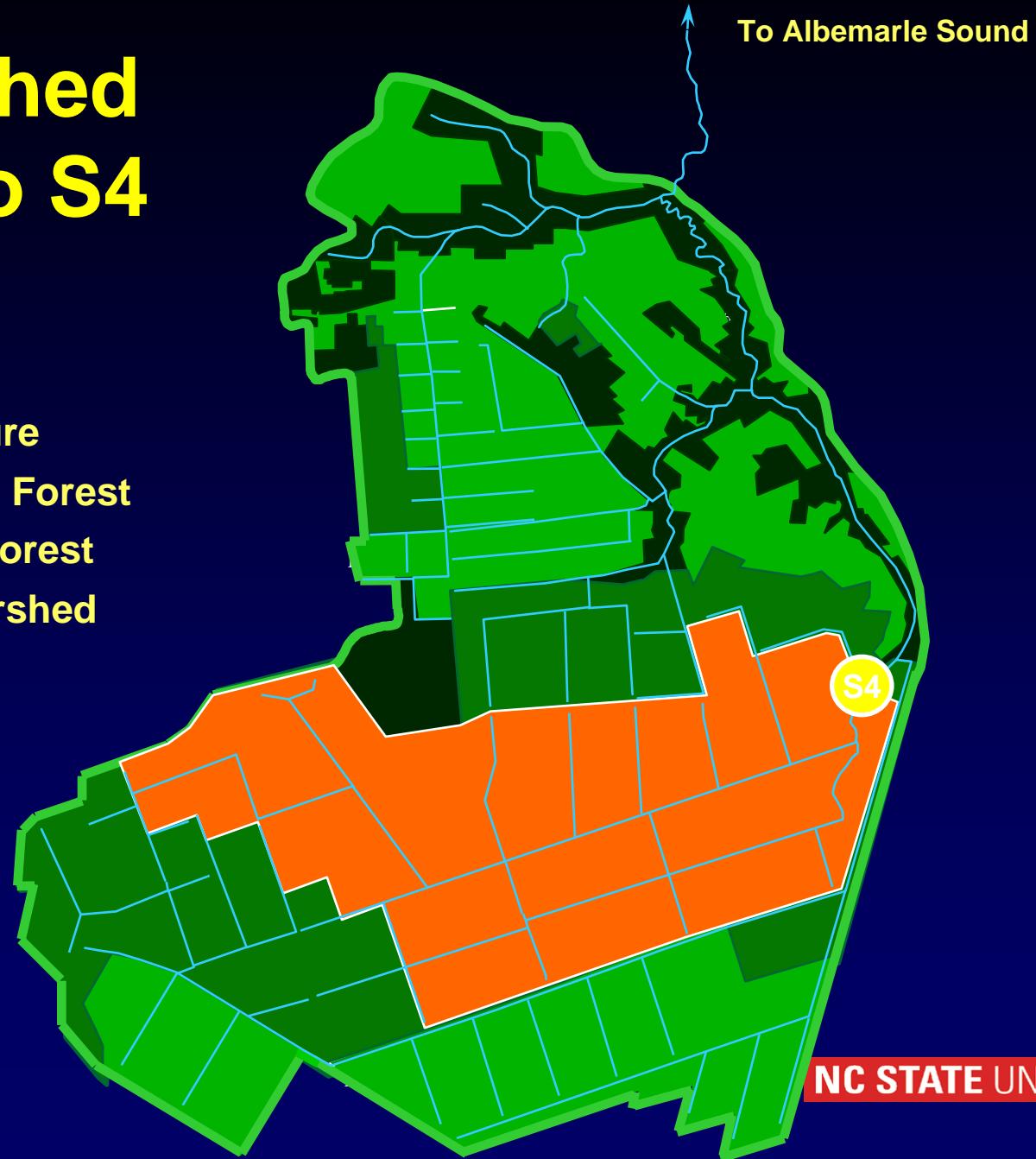




Subwatershed Draining to S4

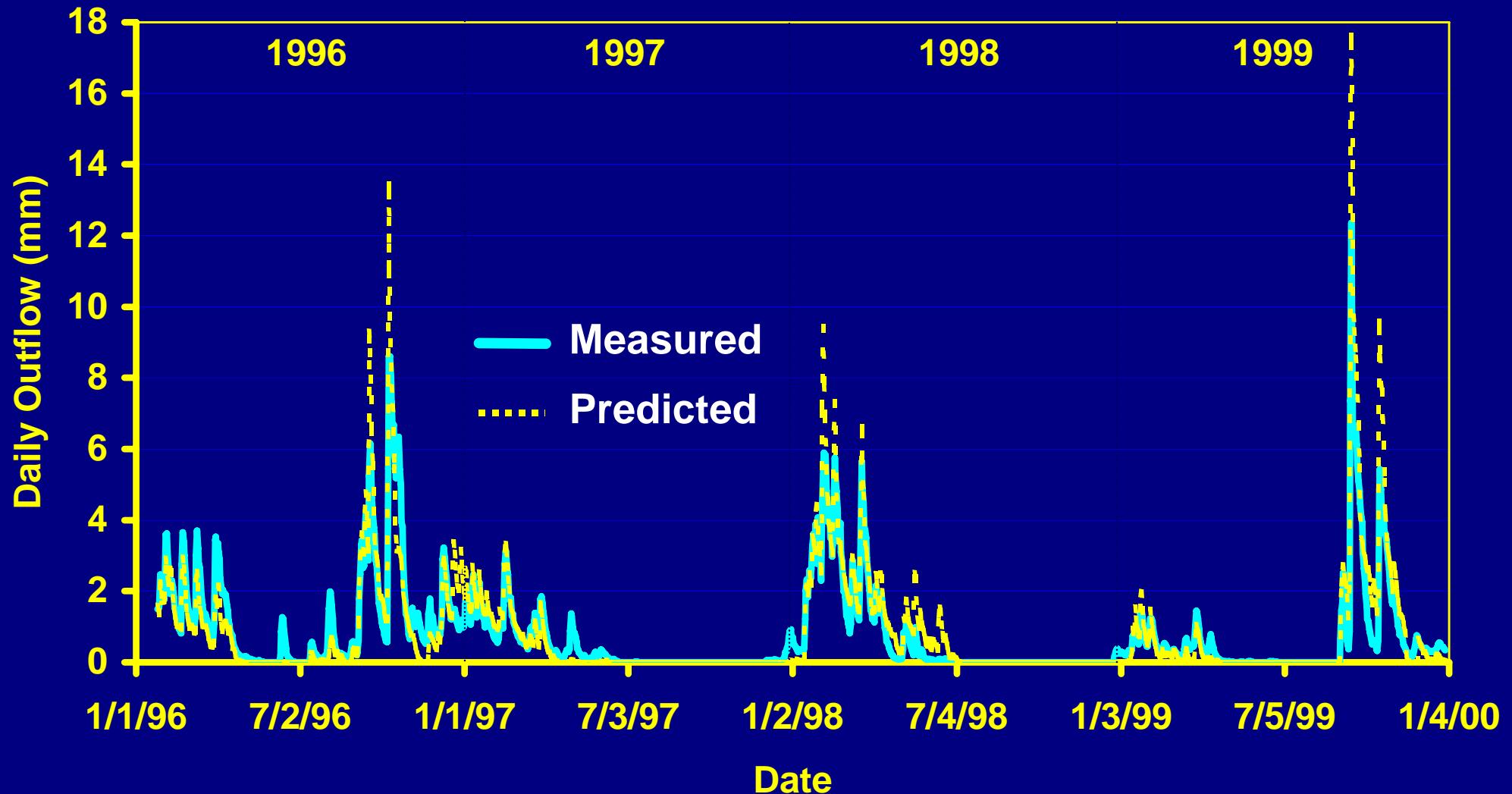
3000 ha

- █ Agriculture
- █ Managed Forest
- █ Natural Forest
- █ Subwatershed

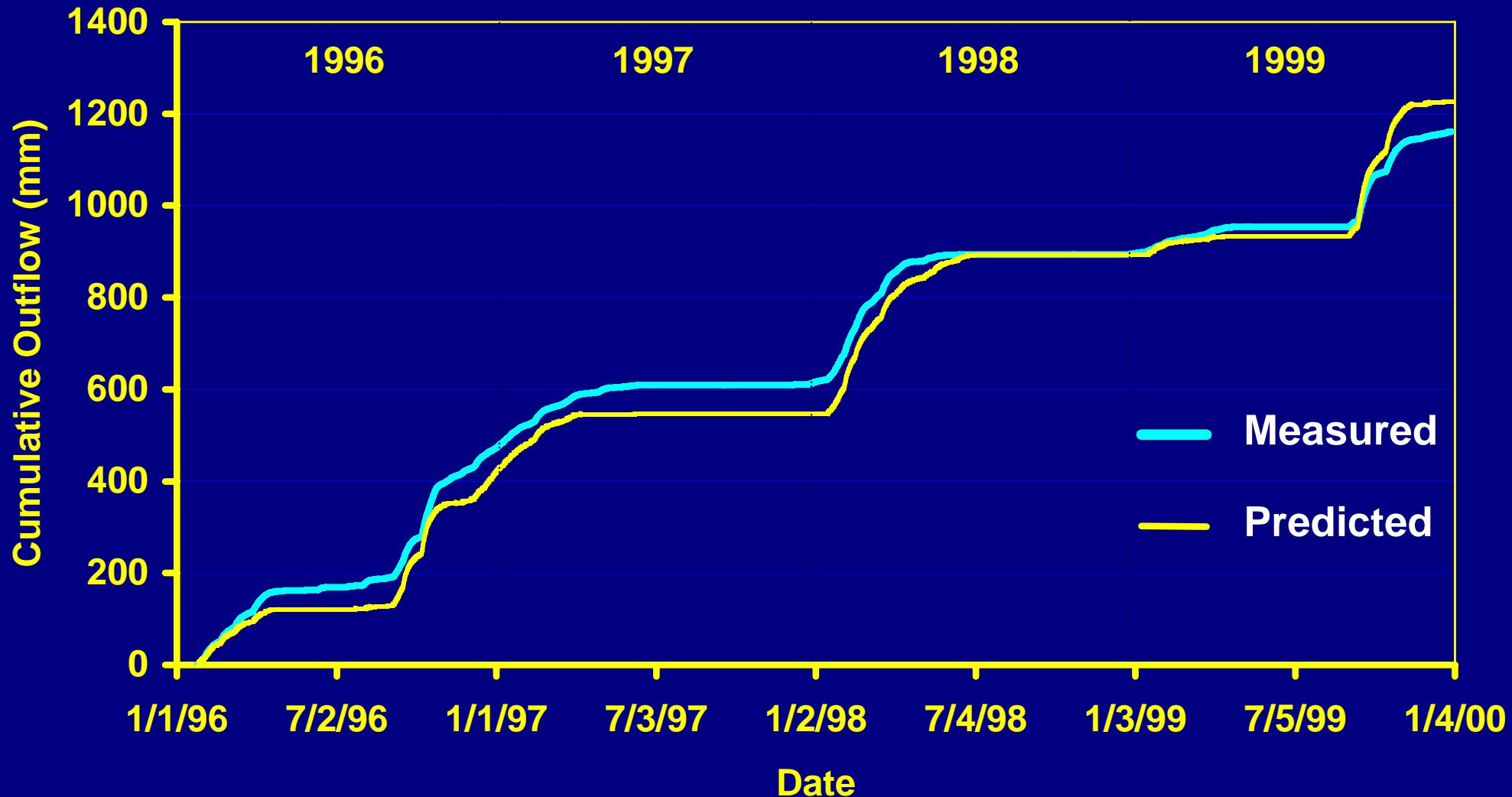


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Measured and Predicted Outflow at the Outlet of S4 Subwatershed



Measured and Predicted Outflow at the Outlet of S4 Subwatershed



Delivery Ratio Values for Each Field

- 40 - 50
- 50 - 60
- 60 - 70
- 70 - 80
- 80 - 90
- 90 - 100

